

What is claimed is:

1. An asset fleet health monitoring system, comprising:
 - a sensor data feed module for providing multivariate sensor data from a plurality of fleet assets;
 - a database for storing empirical models of assets in the fleet;
 - an estimation engine disposed to generate estimated sensor values and residuals in response to receiving from the data feed an observation of multivariate sensor data for an asset in the fleet, using a corresponding empirical model for the asset stored in said database;
 - an incident diagnostics engine module responsive at least to said residuals to determine whether an incident should be registered for said asset; and
 - a graphical interface module having a hierarchical fleet view of the health status of all assets and an exception-based view of all assets having registered incidents.
2. A system according to claim 1, wherein said estimation engine generates estimated sensor values according to a nonparametric kernel-based method.
3. A system according to claim 2, wherein said estimation engine generates estimated sensor values according to a similarity-based modeling method.
4. A system according to claim 3, wherein said incident diagnostics engine comprises rule objects having rules and actions, and executes rules against at least said residuals to determine whether an incident should be registered for said asset.
5. A system according to claim 4, wherein said incident diagnostics engine has an action stack, and when a rule of a rule object evaluates to a particular

condition, an action of the rule object is added to the action stack for execution, and where possible actions include registering an incident for the asset.

6. A system according to claim 5, wherein an action of a rule object is to activate another rule object.

7. A system according to claim 1, further comprising a model creation module for processing historic reference data for an asset to generate a model for the asset and storing it in said database.

8. A system according to claim 7, wherein said model creation module is functional to copy reference data and a model for an asset stored in said database for offline model modification, and further functional to copy a modified model into said database and activate it for runtime processing of incoming observations corresponding to the asset.

9. A system according to claim 3, wherein said database stores said empirical models in a hierarchical format corresponding to the hierarchical fleet view of said graphical user interface module.

10. A system according to claim 9, wherein the hierarchical format includes a hierarchy level corresponding to a collection of assets, a hierarchy level corresponding to individual assets, and a hierarchy level corresponding to modes of operation of individual assets.

11. A system according to claim 3, wherein said graphical user interface module has an exception-based view of a subset of assets in the fleet having registered incidents.

12. A system according to claim 11, wherein any exception-based view of assets in the fleet having registered incidents is functional to list registered incidents for a given asset under the asset in the view, upon a user action indicating selection of the asset for listing of its incidents.

13. A system according to claim 12, wherein said graphical user interface module is disposed to provide its views in a format viewable in a web browser, and an asset on any exception-based view is hyperlinked to activate a listing of its registered incidents under it in the view.